combining with the sample one or more antibody binding compounds for each of the target compounds such that in the presence of a target compound a complex is formed between each target compound and the one or more antibody binding compounds specific therefor;

cleaving the cleavable linkages of each antibody binding compound forming such complex so that eTag reporters are released; and

separating and identifying the released eTag reporters based on the one or more physical characteristics to determine the presence or absence of the one or more target compounds.

6. The method of claim 5 further including a step prior to said step of cleaving, the step comprising separating said complexes from unbound said antibody binding compounds.

7. The method of claim 6 wherein said cleavable linkages are each an olefin, a thioether, a sulfoxide, or a selenium analog of the thioether or sulfoxide.

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8. The method of claim 7 wherein said step of cleaving includes oxidizing said cleavable linkages to release said eTag reporters.

9. The method according to claim 5, 6, 7, or 8 wherein each of said eTag reporters has a fluorescent label or an electrochemical label, and wherein said one or more physical characteristics are electrophoretic mobility or fluorescence.

10. The method of claim 9 wherein said antibody binding compound is selected from a group defined by the formula:

$$[(M, D)\text{-}L]_k\text{-}T$$

wherein:

T is an antibody specific for said target compound;

k is an integer in the range of from 1 to 10;

L is said cleavable linkage;

D is a detection group; and

M is a mobility modifier consisting of from 1 to 500 atoms selected from the group consisting of carbon, hydrogen, oxygen, nitrogen, sulfur, phosphorus, and boron; and

wherein upon cleavage M and D impart on said eTag reporter a distinct mass/charge ratio so that said eTag reporters from different antibody binding compounds form distinct peaks upon electrophoretic separation.

11. The method of claim 10 wherein said mass/charge ratio is in the range of -0.001 and 0.5, and wherein said step of providing includes providing a plurality of from 5 to 100 said antibody binding compounds.

12. The method of claim 11 wherein k is in the range of from 1 to 3, and wherein M is a mobility modifier consisting of from 1 to 300 atoms selected from the group consisting of carbon, hydrogen, oxygen, nitrogen, sulfur, phosphorus, and boron.

13. The method of claim 12 wherein said plurality of said antibody binding compounds is in the range of from 5 to 50.

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14. The method of claim 5 wherein said cleavable linkage is cleaved by oxidation, wherein said one or more physical characteristics are electrophoretic mobility or fluorescence, and wherein said step of cleaving includes providing a second antibody binding compound specific for each of said one or more target compounds, each second antibody compound having a sensitizer for generating an active species for oxidizing said cleavable linkage.

15. The method of claim 14 wherein said active species is singlet oxygen and said cleavable linkage is an olefin, a thioether, a sulfoxide, or a selenium analog of the thioether or sulfoxide.

16. The method according to claim 14 or 15 wherein said step of providing includes providing a plurality of from 5 to 100 said antibody binding compounds.

17. The method of claim 16 wherein said mobility modifier consisting of from 1 to 300 atoms selected from the group consisting of carbon, hydrogen, oxygen, nitrogen, sulfur, phosphorus, and boron.

18. The method of claim 17 wherein said detection group comprises a fluorescent label or an electrochemical label.

19. A method for determining the presence or absence of one or more target compounds in a sample, the method comprising the steps of:

providing one or more binding compounds specific for each of the one or more target compounds, each binding compound having one or more eTag reporters attached thereto by a cleavable linkage, the one or more eTag reporters of each binding compound being distinguished from those of other binding compounds by one or more physical characteristics;

providing a second binding compound specific for each of the one or more target compounds, each second binding compound having a sensitizer for generating an active species;

combining with the sample one or more binding compounds and a second binding compound for each of the one or more target compounds such that in the presence of a target compounds a complex is formed between the target compound, the one or more binding compounds specific therefor, and the second binding compound specific therefor, and such that the sensitizer of the second binding compound causes the generation of an active species and the cleavage of one or more cleavable linkages to release one or more eTag reporters; and

electrophoretically separating and identifying the one or more released eTag reporters to determine the presence or absence of the one or more target compounds.

20. The method of claim 19 wherein said cleavable linkage is cleaved by oxidation and wherein said active species is singlet oxygen or hydrogen peroxide.

21. The method of claim 20 wherein said active species is singlet oxygen and said cleavable linkage is an olefin, a thioether, a sulfoxide, or a selenium analog of the thioether or sulfoxide.

22. The method of claim 21 wherein said binding compound and said second binding compound are each antibody binding compounds.

23. The method according to claim 19, 20, 21, or 22 wherein said eTag reporter are identified by fluorescence or by an electrochemical label, and wherein said step of providing one or more binding compounds includes providing a plurality of from 5 to 100 said binding compounds.